

## Learning area 2 - 3D printing

### Module A: 3D Printing / FDM



#### Content overview

In this workshop you will learn the basics of 3D printing and how to use the FDM 3D printers in the Maker's Factory. We will look at different printing technologies, printing materials and file formats. Moreover you will send a 3D model of your choice to one of the 3D printers for production. The following topics will be covered during the course.

- How Fused Deposition Modelling (FDM) works and how to use the different FDM 3D printers at the Maker's Factory. (Prusa MK3S, Craftbot+ and Ultimaker S3/S5)
- We take a look at the material library in the field of 3D printing and get an overview of other existing 3D printing technologies.
- Which file format you need and how to create it.
- How to feed the desired printer with the slicing software Cura
- What the right settings are for the material you want to use and how to get the best results.
- What the necessary post-processing steps after the print process are.

To get your first practical experience, you can choose from our sample library or come with your own design file and we'll see how we can implement it together.

#### Modules

1. Introduction to 3D printing with FDM
2. Introduction to the slicing software Cura
3. Printing process and post-processing of manufactured objects
4. Thinking outside the box: the 3D printing technologies Stereolithography (SLA), Polyjet, Selective Laser Sintering (SLS), Digital Light Process (DLP) and Multi Jet Fusion (MJF)

#### Objectives

- After successful participation in this workshop, you will be perfectly positioned to operate the FDM 3D printers in the Maker's Factory on your own and thus put your own ideas into practice. A membership or a day pass is the only thing standing between you and your finished product.
- You will understand how to create and prepare files for 3D printing.
- You will be trained to use the Cura slicing software to prepare and save print jobs and feed them to the 3D printers
- We also try to teach you more about the different materials so that you understand what material-specific settings you need to consider

#### What should be brought

- If you already have an idea of what you would like to realize with 3D printing, please bring sketches, prototypes or 3D files, if available

**Duration:** 2 hours

**Minimum age:** 18 years

**Number of participants:** 3

**Language:** Course languages are German or English (depending on demand)

**Costs:** Free within active membership, otherwise you need a day pass